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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,762	03/18/2004	Dong Soo Lee	122988-05007285	4699

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EXAMINER	
LIN, PHYOWAI	
ART UNIT	PAPER NUMBER
2609	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/802,762	LEE ET AL.	
	Examiner	Art Unit	
	PHYOWAI LIN	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-5 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-5 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 18 March 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 06/14/04,09/01/05.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The references listed in the Information Disclosure Statement filed on June 14,2004 and September 1,2005 have been considered by the examiner (see attached PTO-1449 form).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1,3-5** are rejected under 35 U.S.C. 102(e) as being anticipated by Ooi et al. (US Patent Number 6,606,424).

Regarding Claim 1, Ooi et al. discloses an apparatus (see FIG.22) for generating a Carrier-Suppressed Return-to-Zero (CS-RZ) signal (an output optical signal (fairly characterized as CS-RZ signal)-see column 17,lines 10-12 and FIG.22), includes:

a mixer generating a modulator input by mixing data with a half clock signal (see column 16,lines 56-58 and FIG. 22 in which the electrical signal is outputted by input electric signal source and it superimposes with half signal of the time delay unit);

a Low Pass Filter (LPF) (LPFs #2-see column 17, line 41) band-limiting the modulator input data (see column 17,line 44), which has been provided from the mixer, into low frequency band data (see column 17,lines 39-44 in which low pass filter (LPF) narrows down the input electrical signal into low-band range);

a driver amplifier (an driving circuit #2-see column 16,line 64) amplifying the modulator input data (see column 16,line 64-65) generated by the mixing of the mixer and the band-limiting of the LPF (see column 17,line 45-47 and FIG.22 in which the input electrical signal in driving circuit is limited by LPF before it goes through the driving circuit) ; and

an external modulator (zero chirping modulator-see column 14, lines 40-43 and FIG.15) generating a CS-RZ signal (an output optical signal (fairly characterized as CS-RZ signal)-see column 14,lines 53 and FIG.15(a)), in which phases of adjacent pulses are inverted (see FIG.15(a)) , by applying bias voltage to the modulator input data, which has been amplified by the driver amplifier (see column 17,lines 25-28) in which bias voltage applies to the driving electrical signal), to be placed at a null point of a transfer function of the external modulator(see column 17,lines 25-36 in which the bias voltage sets DC potential voltage to be zero voltage).

Regarding to claim 3, Ooi et al. discloses everything claimed as applied above (see claim 1). In addition, the apparatus includes:

wherein: the band limiting reduces an optical spectrum bandwidth of the CS-RZ signal while reducing noise of the signal (see column 15,lines 15-19 in which low-band filter (LPF) decreases the optical signal bandwidth and it cuts off the noise ratio by inherent effect of filtering);

the decrease of the optical spectrum bandwidth improves dispersion characteristics of the optical signal (see column 15,lines 18-19 and FIG. 17 in which reducing the signal bandwidth can improve the dispersion level of the signal); and

the bandwidth of the LPF is adjusted to increase dispersion tolerance of the optical signal while minimizing distortion of the optical signal (see column 15,lines 18-19 and see column 15,lines 32-33 in which (LPF) reduce the signal bandwidth and the narrow bandwidth can improve the dispersion tolerance of the signal as well as signal distortion).

Regarding to the claim 4, Ooi et al. discloses everything claimed as applied above (see claim 1). In addition, the apparatus includes:

wherein the driver amplifier performs amplification so that logical data "0" becomes 0 V and logical data "1" becomes .+-.V.pi (see column 2,lines 43-59 and FIG.2 in which FIG.2 teaches that when electrical signal “0” is amplified by amplifier it becomes 0 V as light intensity and when electrical signal “1” is amplified by amplifier it becomes +-V.pi as light intensity.)

Regarding to the claim 5, Ooi et al. discloses everything claimed as applied above (see claim 1). In addition, the apparatus includes:

wherein the LPF is an electrical filter designed to reduce the spectrum of the optical signal and improve the dispersion characteristics of the optical signal (see column 15,lines 18-19 and FIG. 17 in which reducing the signal bandwidth can improve the dispersion level of the signal).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ooi et al. (US Patent Number 6,606,424).

Regarding to the claim 2, Ooi et al. discloses everything claimed as applied above (see claim 1). However, Ooi et al fails to discloses the adjustment of clock signal to swing around 0 V in a single embodiment.

Never the less, Ooi et al. discloses in a second embodiment (background invention embodiment) adjusts the logical data "0" to data 0V (see column 1,lines 65).

Therefore it has been obvious to a person of ordinary skill in the art at the time the invention was made to provide the adjustment of a clock signal to swing around 0 V because adjust the clock signal to swing around 0 V as same as making the logical data "0" to 0 V which can make the better optical communication for long-distance transmission and provide higher accuracy.

Citation of Pertinent Prior Art

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yonenaga et al. (US Patent Number 5,543,952) discloses a optical transmission system which includes an optical signal spectrum suppression for higher accuracy of long distance communication.

Ooi et al. (US Patent Number 5,805,321) discloses an optical modulating apparatus, which includes pre-chirping method by using driving amplifier circuit, optical modulator and other optical components for better optical output signal.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHYOWAI LIN whose telephone number is (571) 270-1659. The examiner can normally be reached on Monday through Firday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo R. Feliciano can be reached on (571) 272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LIN 01/11/07

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1/21/07

ELISEO RAMOS-FELICIANO
SUPERVISORY PATENT EXAMINER